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Docket No.: 49657742

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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| In re Application of | : | Customer Number: 20277 |
| Katsunori ITOU, et al. | : | Confirmation Number: 4615 |
| Application No.: 09/582,982 | : | Group Art Unit: 1742 |
| Filed: July 10, 2000 | : | Examiner: H. Wilkins, III |
| For: ANTIFRICTION BEARING PART FOR HIGH TEMPERATURE | : | |

REPLY BRIEF

Mail Stop Reply Brief
Commissioner for Patents
P.O. Box 1450
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Sir:

This Reply Brief is submitted in response to the Examiner's Answer dated September 16, 2004.

ARGUMENTS

Appellants acknowledge the Examiner's withdrawal of the rejection under 35 U.S.C. § 103 for obviousness predicated primarily upon Takata et al. in view Ochi et al., the acknowledged prior art and JIS. The Examiner maintained the rejection of claims 1 and 2 under 35 U.S.C. § 103 for obviousness predicated upon Adachi et al. with support from Ochi et al. Appellants submit that the Examiner's rejection of claims 1 and 2, as expressed in the September 16, 2004 Answer, is clearly factually and legally erroneous for the reasons set forth in the Appeal Brief submitted August 3, 2004, which reasons are incorporated herein, in addition to the reasons set forth below.

The problem addressed by the present invention.

The problem addressed by an invention is significant in two respects. Firstly, it bears on the motivational element. As held by the Court of Appeals for the Federal Circuit in *Ecolochem Inc. v. Southern California Edison, Co.* [227F.3d 973], 56 USPQ2d 1065, 1076 (Fed. Cir. 2000), in order to establish the requisite motivation, the Examiner must provide a factual basis to show that:

... a skilled artisan, confronted with the same problem as the inventor and with no knowledge with the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.

Secondly, the problem addressed and solved by a claimed invention must be given consideration in resolving the ultimate legal conclusion of obviousness under 35 U.S.C. § 103 because it is an indicium of **nonobviousness**. *North American Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 28 USPQ2d 1333 (Fed. Cir. 1993); *Northern Telecom, Inc. v. Datapoint Corp.*, 908 F.2d 931, 15 USPQ2d 1321 (Fed. Cir. 1990); *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989); *In re Nomiya*, 509 F.2d 566, 184 USPQ 607 (CCPA 1975). The Examiner has conspicuously eschewed the problem element in his rush to the obviousness conclusion and in ignoring the subject matter as a whole.

On page 2 of the Appeal Brief under the caption “**V. SUMMARY OF THE INVENTION**”, Appellants pointed out that the present invention is directed to an antifriction bearing part designed for high temperature service which demands excellent **rolling contact fatigue life**. It was pointed out that high temperature tempering treatments adversely impact **rolling contact fatigue life**. It was further pointed out that the present invention addresses and solves that problem by providing an antifriction bearing part having an excellent **rolling fatigue life** in severe environments by formulating a steel having a **specific combination of elements**, referring to page 4 of the written description of the specification, lines 2 through 6. Appellants also referred to the data in Tables 1, 3 and 4 to illustrate an unexpected and dramatic superior rolling fatigue life. The Examiner’s Answer conspicuously avoids the problem of achieving superior rolling fatigue life, Appellant’s successful achievement of that objective and the data in the specification.

The Examiner’s approach to the silicon issue fights the facts.

In the August 3, 2004 Appeal Brief, Appellants argued that the Examiner’s own reference to Adachi et al. **teaches away** from the 0.5 wt% silicon limitation of the claimed invention by pointing to a significant degradation in properties, including machineability, cold-workability and hot-workability. The significance of the 0.5 % silicon limitation is also underscored by Mitamura et al. as argued on page 6 of the August 3, 2004 Appeal Brief. Appellants would again stress that unlike Adachi et al., Appellants found that the saturation point of the heat-resistant effect is at 3% silicon not at less than 0.5% silicon, as specifically taught by Adachi et al. Accordingly, the present invention **proceeds against** the teachings of the primary reference to Adachi et al. Appellants further stressed that the Examiner’s disposition of the difference in silicon between the Examiner’s

relied upon steel no. 6 in Table 1 of Adachi et al. (0.428%) and the claimed invention requiring at least 0.5 wt% silicon is factually and legally unsupportable.

Appellants stressed that one having ordinary skill in the art would not have been realistically motivated to elevate the silicon content of steel no. 6 appearing in Table 1 of Adachi, relied upon by the Examiner, because both Adachi et al. and Mitamura et al. teach one having ordinary skill in the art to stay away from 0.5 wt%. But the Examiner knows better than Adachi et al. and Mitamura et al. The Examiner argues the clear teachings away from the claimed invention in his rush to see how close he can get to 0.5 wt% without getting burned.

The Examiner's first approach is to ignore not only the difference between the minimum of 0.5 wt% silicon of the claimed invention and the 0.42 wt% silicon of the relied upon steel no. 6 by saying that 0.428 wt% is **close enough** to 0.5 wt%. **But that is not what the prior art teaches**, including the Examiner's own reference to Adachi et al. as well as Mitamura et al. In fact, advertizing to paragraph [0011] of Adachi et al., it is disclosed that if the steel contains 0.5 wt% or more, "... cutting ability, cold-working nature, and warm-working nature fall **remarkably**" (emphasis supplied). It is for this reason that Adachi et al. stress that the silicon content **must be less than 0.5 wt%**.

The Examiner steps into the ring with Adachi et al. and Mitamura et al. asserting that steel no. 6 of Adachi et al. "would have been expected to the same properties" as the same steel with 0.5 wt% Si. The Examiner refers first to the MPEP. In that same paragraph bridging pages 3 and 4 of the Answer, the Examiner says:

In addition, the value of Example steel no. 6, 0.42 wt%, is close enough to the presently claimed range that one having ordinary skill in the art would have expected the steel to have the same properties.

There is absolutely **no factual basis** for the Examiner's determination that one having ordinary skill in the art **would have expected** steel no. 6 to have the **same** properties if the silicon

content was elevated to 0.5%. On the other hand, the Examiner's own reference to Adachi et al. clearly states that if the silicon content is elevated to 0.5 wt%, there would be a **remarkable** falling off of cutting ability, cold-working nature and warm-working nature. Thus, the Examiner's basis for deviating from steel no. 6 of Adachi et al. and elevating the silicon content to 0.5 wt% is not only devoid of any factual basis but **proceeds against** the expressed teaching of his own reference. In short, the Examiner's rationale is mugged by his own primary reference to Adachi et al.

The Examiner, on page 5 of the Answer, resorts to a tradeoff approach of beneficial properties. The Examiner says that above 0.5 wt%, the workability would be reduced, but the "resistance-to-temper-softening" would be increased. The Examiner then conjures up a balancing act, calls the 0.5 wt% limitation of Adachi et al. "... merely a guideline" said to support the "closeness of the prior art range of Si to the presently claimed range" (paragraph bridging pages 5 and 6 of the Answer. The Examiner's approach is **factually erroneous**. Firstly, the Examiner does not identify any factual basis for the "balancing act" because he cannot. Secondly, the expressed disclosure of a **remarkable** falling off of cutting ability, cold-working nature and warm-working nature at 0.5 wt% silicon or more is **not a guideline**. It is a **warning**. As a matter of fact, where Adachi et al. fear to tread the Examiner rushes headlong. Further, in paragraph [0011], it is disclosed that at 0.5% or more, the resistance-to-temper-softening effect seized upon by the Examiner "... is saturated...". So much for the "balancing act".

Evidence of nonobviousness.

As previously argued, the **problem** of formulating and fabricating an antifriction bearing part designed for high temperature service exhibiting excellent rolling contact fatigue life not only cuts against the Examiner's "close enough" motivational element, but also evinces the

nonobviousness of the claimed invention **as a whole**. *Jones v. Hardy*, 727 F.2d 1524, 220 USPQ 1021 (Fed. Cir. 1984).

Another indicium of **nonobviousness** stressed is that the Examiner's own reference to Adachi et al. **teaches away** from employing 0.5 wt% silicon or more because of a **remarkable** fall off in cutting ability, cold-working nature and warm-working nature. This **teaching away** from the claimed invention constitutes another indicium of **nonobviousness**. *In re Bell*, 991 F.2d 781, 26 USPQ2d 1529 (Fed. Cir. 1993); *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 6 USPQ2d 1601 (Fed. Cir. 1988); *In re Hedges*, 783 F.2d 1038, 228 USPQ 685 (Fed. Cir. 1986); *In re Marshall*, 578 F.2d 301, 198 USPQ 344 (CCPA 1978).

Yet another indicium of **nonobviousness** is the **unexpected** results argued on Appeal and appearing in Tables 1, 3 and 4 of the specification demonstrating an unexpected and dramatic superior rolling fatigue life. **The Examiner committed clear legal error by ignoring such evidence of nonobviousness**. *In re Soni*, 54 F.3d 746, 34 USPQ2d 1685 (Fed. Cir. 1995); *In re Margolis*, 785 F.2d 1029, 228 USPQ 940 (Fed. Cir. 1986).

The evidence in the specification actually undermines the Examiner's free wheeling when it comes to elements of a steel composition. For example, and particularly relevant to the argued rolling contact fatigue life, Appellants refer to Examples F and G in Table 1 vis-à-vis comparative Example P. All of the steels have a silicon content of at least 1 wt% within the range of the claimed invention, but steel P has a nickel content that is not within the range of the claimed invention. The characteristics of these steels are shown in Tables 3 and 4. Inventive Examples F and G as well as comparative Example P all exhibit suitable temper hardness. That is where the similarity ends, because the **rolling contact fatigue life** is dramatically different in that the steels of the present

invention exhibit a **dramatically superior rolling contact fatigue life** vis-à-vis comparative Example P.

These examples illustrate that merely increasing the silicon content to at least 0.5% does not ensure the requisite hardness for the life of a bearing. Rather, it is the interaction of various elements, such as silicon and nickel, which contribute to such an effect. Adachi et al., of course, make no mention of any complex interaction between elements. And there is no basis of record upon which to predicate the conclusion that one having ordinary skill in the art would have been apprised of any such interaction impacting rolling contact fatigue life.

Summary


Based upon the foregoing, Appellants submit that the Examiner's rejection of the appealed claims lacks the requisite factual basis and lacks the requisite motivational element. The Examiner's approach ignores expressed teachings in the applied prior art and blindly announces an expectation of similar properties by virtue of the difference in silicon contents which is completely scotched by the Examiner's own reference to Adachi et al. as well as Mitamura et al. The Examiner ignores at least three indicia of nonobviousness. Indeed, upon considering all of the evidence of record, the conclusion appears inescapable that one having ordinary skill in the art would **not** have found the claimed invention **as a whole** obvious within the meaning of 35 U.S.C. § 103. *In re Piasecki*, 745 F.2d 1468, 223 USPQ 785 (Fed. Cir. 1984). Appellants, therefore, solicit the Honorable Board to reverse the Examiner's rejection of claims 1 and 2 under 35 U.S.C. § 103.

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To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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